LPA PADS

U.S. Department of Transportation
Federal Highway Administration-
California Division- Title 23
Damage Assessment Form (DAF)

DAF No. MEM - EPA0 - 001 - 0
Sheet # 1 of ____ Federal Project # EO ER - ____ ( )
Disaster No. CA 13 - 1 PR ER - 22X0 (007)

Applicant	County	Incident Date (mm/dd/yyyy)	Inspection
City of East Palo Alto	San Mateo County	12/23/2012	12/25/2013

Location of Damage: Per Site ✓ or ☐ Per Mile
Federal-aid Highway? Y for yes, if no, ineligible for ER funds: Y

Name of Road/Bridge: Woodland Avenue
PM Begin: ____ PM Length: 1,600.00 (in feet)
PM End: ____
Map No: 5M14
Functional Classification Type: Major Collector
Route #: ____

Road/Bridge Data: Bridge No 35C0029 Type: Concrete

Traveled Way:	Width +/- 24'	Type:	PCC ☐	AC ☐	Gravel ✓	Forest Hwy? Y/N: N	Interstate? Y/N: N
Shoulder:	Width 0	Type:	PCC ☐	AC ☐	Gravel ☐	Existing ADT: 5,000	

Description of Damage: San Francisquito Creek overtopped its banks and flooded Woodland Avenue on December 23, 2012, spilling water and debris on the roadway. Flooding caused slope failures to the creek bank and tension cracks on the shoulder of the roadway; approximately 1,600 feet of roadway was affected. Site 1 - slip damage to the creek bank and tension

COST ESTIMATE

	Type of Repair	Description of Work	Cost Summary	
Emergency Opening (EO)	EO- AGENCY FORCES CT Work Order #(s): Work Order not needed EA(s):	Shut down and secure the roadway. Re-route traffic routing, provide safety patrol during flooding. Remove and clean-up water, soil and debris. Install safety rail, fence, barriers and signs to protect the public.	PE	75,000
			CE	
			Construction	
	EO- CONTRACT EO EA(s):	(need award package) Kermani Consulting Group, Inc. ESR, Inc., Site 5 slope and roadway stabilization: installation of Geobrugg Tecco slope repair system,	PE	
			CE	100,000
			Construction	148,717
	NOTE: Environmental documentation for EO is required. It is generally started after work has begun.		R/W	
		Subtotal Emergency Opening		$323,717
Permanent Restoration (PR)	PR- CONSTRUCTION FA requires an approved PIF ☐ Contract ☐ FA PR EAs ____	Site 1 geotechnical testing and evaluation indicates that the preferred option to permanently repair the creek bank to protect Woodland Avenue and adjacent utilities is a cast-in-drilled-hole concept with the CIDH piers structurally connected with a reinforced concrete grade beam.	PE	12,000
			CE	50,000
			Construction	750,000
	NOTE:PRIOR AUTHORIZATION (APPROVED E-76) IS REQUIRED TO PROCEED WITH PERMANENT RESTORATION R/W & CONSTRUCTION		R/W	
	NOTE: Environmental clearance for permanent restoration is conducted through normal Federal-aid procedures	**Subtotal Permanent Restoration**		$812,000

Eligible	Signature	Date		
☒ Yes ☐ No	Local Agency (if applicable): Kamal Fallaha	7-25-13	PE Total	$87,000
☒ Yes ☐ No	Caltrans: m militante	7-22-2013	CE Total	$150,000
☐ Yes ☐ No	FHWA*:		R/W Total	$0
			Construction Total	$898,717
			TOTAL ESTIMATE	**$1,135,717**

Agency sig. Name (print): Kamal Fallaha KAMAL FALLAHA FHWA Sig. Name (print): ____
CT signature Name (print): Mario Militante DAF Prepared by (print): ____

Original: Caltrans District **Copies:** FHWA, Division of Local Assistance(local roads), Federal Resources (state hwy), HQ Major Damage Engineer (state hwy)
*Write "N/A" in FHWA signature block if the project has no Federal ER funding or Federal ER funding delegated to the State.
FHWA Signature: REQUIRED for all Federal Funded State projects. REQUIRED for any Local Agency projects with 1) any BETTERMENT, 2) more than 2 ROW takes or 3) when paving is more than 50% of the Total Estimated Cost. **Reminder: This DAF must be accompanied by photos of the damage.**

FHWA CA Form (CA Rev 12/10)

Engineer's Estimate

Creekbank Slope Repair Project, San Francisquito Creek at Woodland Avenue

CITY OF EAST PALO ALTO, CALIFORNIA

I. Base Bid Schedule

ITEM NO.	ITEM DESCRIPTION	EST. QUANTITY	UNIT OF MEASURE	UNIT PRICE ($)	TOTAL AMOUNT ($)
1	Mobilization, permits, layout of work, daily cleanup,	1	LS	$10,000	$10,000
2	Traffic Control	1	LS	$3,000	$3,000
3	Remove tree stump and above ground vegetation	1	LS	$5,000	$5,000
4	Excavate Keyway and trim soils at top of slope.	50	LS	$200	$10,000
5	**Install new Slope Improvement system:**				
5.1	Soils Nails: excavate, installation, and Load Testing	50	EA	$900	$45,000
5.2	Install North American Green C350 turf mats	350	SY	$25	$8,750
5.3	Place and install Geobrugg tecco-mesh, clips and	175	SY	$100	$17,500
6	Place 1/4-ton Cal Trans Rip-Rap in Keyway	90	TON	$300	$27,000
7	Planting- seeding, willow or blackberry sprigs	1	LS	$5,000	$5,000
8	Guardrail with custom post spacing at 5-ft O.C., Two Terminal Sections & Markers	75	LF	$200	$15,000
9	Asphalt Concrete Dike (Type A)	60	LF	$80	$4,800
Subtotal					**$151,050**

II. Add Alternate

10	Asphalt Concrete (Type B), Mill and Fill	35	TON	$380	$13,300
Subtotal					**$13,300**
Total Bid Amount = Base Bid Schedule + Add Alternate Bid					**$164,350**
15% Contingencies					**$24,653**
Total Estimated Construction Cost					**$189,003**

MILLER PACIFIC
ENGINEERING GROUP

Engineer's Estimate
Site #1 Creekbank Slope Repair (CIDH roadway edge support)
Woodland Avenue Upstream of University Avenue
East Palo Alto, California

Item	Description	Quantity	Unit Price	Units	Total
1.0	Mobilization, permits, layout of work, daily cleanup, other ancillary work not wotherwise listed and final cleanup.	1	30,000	LS	35,000
2.0	Traffic Control	30	1,500	Day	45,000
3.0	25-30 foot deep, 18-inch drilled piers @ 6' on center, 4 foot deep reinforced concrete grade beam to interconnect pier tops. (Note, based on 10-15 of these walls over the past 5-10 years, unit prices typically range from $1000 to $2000 per linear foot for the completed concrete structure)	350	1,700	LF	595,000
4.0					
			Subtotal		675,000
5.0	Contingency			10%	67,500
			Total		742,500

Militante, Marco@DOT

From: Sharon Jones [sjones@cityofepa.org]
Sent: Thursday, June 27, 2013 10:02 AM
To: Militante, Marco@DOT
Cc: Kamal Fallaha; John Doughty
Subject: RE: Emergency Flood Damage at Woodland Avenue

Hi,

1) We may need to revise some of the cost estimates, now that more information is known. We completed the EO work for "Site 5" and now know the final cost for construction for that. We also had some EO work completed on the Site 1, 2 areas.

Site 5 EO Construction cost, Engineered Soil Repairs: $165,126.70
Site 2 EO Woodland at University Avenue bridge: $8,125.00
Total: $173,251.70

CE for Woodland Avenue sites, Kermani Consulting/Miller Pacific Eng'ring (KCG/MPE), Initial Observations and Geotechnical Opinions: $25,000.00
CE for Site 5, KCG/MPE, PS&E of EO and Inspection during Construction: $50,000
CE for Site 2 EO, KCG/MPE $5,000
CE for Site 1, KCG/MPE along Woodland Avenue, Assessment and Geotechnical Investigation and Concept: $12,000 (to determine EO/PR)
Total CE: $92,000.

This is significantly higher than 10% CE cost to Construction. As stated in the City's Proclamation of Emergency, the City is economically disadvantaged relative to its neighbors; the City has an operating budget deficit, even after successive rounds of layoffs, employee concessions and freezing of positions; the City has limited funds for immediate flood control measures. The City's priority was to address the immediate necessities to address the flood. Initial damage estimates were much higher than the eventual construction contract bids came in, and these estimates exceeded the City's reserves. The CE costs are actual costs submitted by the consulting engineers, and the City could not predict the actual CE cost:construction ratio in the midst of the emergency.

2) Inspection date left blank because I was not sure what date you were looking for.... The flood happened December the evening of the 23rd & into the 24, 2012. The City Engineer, Community Development Director and I performed an initial inspection on December 25, 2012. A second round of inspections was performed with the City Engineer, Kermani Consulting Group and Miller Pacific Engineering on December 27, 2012. There were several dates that others inspected, so if you need dates for Caltrans' or other agencies' inspection, I would need to gather that information.

3) The Engineer's Estimate dated 2-25-13 was for Site 5 – actual cost of Site 5 is shown above. The Engineer's Estimate for Site 1 PR, which is still a conceptual design, and the City has not determined whether or not to proceed due to the expense, is $750,000. This is not a refined estimate.

4) You should now have a signed DAF.

Please let me know if you need additional information, or if you want me to revise the forms to include this information. I can be reached at 650-853-3150.

We are very concerned about timing, due to the fact that six months have passed since the date of the flood.
Sharon

From: Militante, Marco@DOT [mailto:marco.militante@dot.ca.gov]
Sent: Thursday, June 27, 2013 6:56 AM
To: Sharon Jones
Subject: RE: Emergency Flood Damage at Woodland Avenue

U.S. Department of Transportation
Federal Highway Administration-
California Division- Title 23
Damage Assessment Form (DAF)

DAF # _____ - _____ - 0 0 - 0

Sheet # _____ of _____

Applicant

Agency EO Calc ☐ EO contract ☐ PR Calc ☐

Quantity*	Unit*	Labor, Materials, and Equipment	Unit Price	Cost
				0.00
				0.00
				0.00
				0.00
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				0.00
				0.00
				0.00
				0.00
				0.00
			Total	0.00

*Lump Sum will generally only be accepted for non biddable items, such as Mobilization.

Justifications/comments: Non-typical Scope, PE/CE Cost, Engineering estimates etc.

May 14, 2013
File: 1787-02eltr.doc

City of East Palo Alto
1960 Tate Street
East Palo Alto, California 94303

Attn: Mr. Kamal Fallaha, City Engineer

Re: Preliminary Geotechnical Investigation and Conceptual Recommendations
Permanent Restoration- CIDH (Cast-In-Drilled-Hole) - Creekbank Slope Repairs
Woodland Avenue Upstream of University Avenue (List of Projects, Site #1)
City of East Palo Alto, California

Introduction and Project Description

This letter summarizes our Preliminary Geotechnical Investigation and Conceptual Recommendations for Permanent Restoration and to improve the stability along an approximately 350-foot long segment of the northern bank of San Francisquito Creek between University Avenue and Manhattan Avenue in East Palo Alto, California. A site location map is shown on Figure 1.

Our services are provided in accordance with the City's Agreement with Kermani Consulting Group (KCG) dated December 28, 2012 and subsequent approved contract amendment dated April 12, 2013. The City's authorization to proceed with the proposal for Site #1 was sent to KCG on April 16, 2013.

The scope of our current services includes subsurface exploration with two soil borings, laboratory testing of select samples to determine pertinent engineering properties, evaluation of existing surface and subsurface conditions, discussion of alternatives and a conceptual design for a Cast-In-Drilled-Hole (CIDH) type slope buttress as Permanent Restoration for the subject site.

As noted above, the project site is located along San Francisquito Creek, just upstream of the Woodland Avenue Bridge and along the (southern) edge of Woodland Avenue as shown on Figure 2. Damage in this area occurred during a very heavy rainfall event over the weekend of December 22-23, 2012. This site along with several other damaged sites within the City was briefly discussed in our letter report submitted to the City dated December 30, 2012 (Copy attached). In our December letter, this site was identified as "Site 1" so we have continued with that designation in this letter.

We also note that San Francisquito Creek, including this area (i.e. "Site 1"), will be subject to a flood control/improvement project that is being designed by Santa Clara Valley Water District (SCVWD). The timing of any future improvements is uncertain and the current project plans are at a 35% design stage. In the area of Site 1, the plans suggest a floodwall will be constructed to increase channel capacity, although the height of the wall is unknown. The plans also suggest the channel will be widened just upstream of Site 1. The 35% plan is the gray-shaded "background" of Figure 2.

Site Reconnaissance and Existing Conditions

We first visited Site 1 with you, Mr. Masoud Kermani and others on the afternoon of December 27, 2012 and we have performed several subsequent site visits. The graveled-pathway and

horizontal surface between the concrete curb and gutter and the top of bank along the north side of the San Francisquito Creek varies in width between approximately 5 and 10 feet as shown on Photo 1. A shallow failure, estimated at a maximum five feet deep occurred during the December storm event as shown in Photo 1. "Tension cracking" as shown in Photos 2 and 3 also occurred over a distance of perhaps 150 to 200 feet as shown on Figure 2. The maximum width of the cracks was perhaps ½-inch and there was little, if any, vertical offset across the observed cracks.

The creekbank in the subject area varies but is very steep in many areas with an inclination of about 1:1 (horizontal:vertical). The creekbank is about 25 feet high (vertical) and at the time of our December site visit, we estimated five feet of water depth was flowing in the channel. During our subsurface exploration on May 1, 2013 the channel was essentially dry with no observed water flow.

A joint trench or electrical line is also located at the back of the existing concrete curb and gutter. The utility apparently powers streetlights along the south side of Woodland Avenue. Other utilities and improvements may be located along the edge of the roadway, but identifying these features was beyond our current scope of services.

Photo 1: Creekbank just west (upstream) of University Avenue Bridge. Note steepness of slope and proximity of the creekbank to the adjacent roadway. Also note the shallow "popout" / creekbank failure (middle of photo) and soil debris deposited from the failure (lower-right corner of photo). Photo from December 27, 2012.

Photo 2 - View to east (downstream) along Woodland Avenue. Note the tension crack in the "shiny" area of the graveled path adjacent to the concrete Christy box. The signalized intersection is the entrance to the Four Seasons Hotel/Business Park on the north side of Woodland Avenue.

Photo 3 – Close up view of "typical" tension cracks parallel to top of creekbank along Woodland Avenue upstream of University Avenue. Photo taken on December 27, 2012.

Photo 4 - Typical tension cracking along the sidewalk parallel to the top of creekbank between University Avenue and Manhattan Avenue. Photo taken December 27, 2012.

Local Geology

The project site is located along the San Francisquito Creek just west and upstream of Highway 101. According to published geologic mapping shown on Figure 3, the project area is composed of alluvial deposits containing sands, fine-grained silt, and gravel. Alluvium is typically deposited as loose unconsolidated sediments which can easily be eroded and/or be subjected to slope failures and settlement over time when slopes are oversteep.

Seismicity

The site is located within the seismically-active San Francisco Bay Region and will therefore experience the effects of future earthquakes. Such earthquakes could occur on any of several active faults within the region. The California Division of Mines and Geology has mapped various active and inactive faults in the region. Active faults in the region are defined as those

that show evidence of surface displacement in the past 11,000 years (Holocene) and have reported slip rates greater than 0.1 mm per year. The closest significant active fault to the site is the Peninsula section of the San Andreas Fault, located about seven miles southwest of the project site.

Subsurface Exploration and Laboratory Testing

We explored subsurface conditions on May 1, 2013 with two soil borings at the locations shown on Figure 2. Both borings were excavated to 34.5-feet below the ground surface utilizing portable hydraulic drilling equipment equipped with 3.5-inch solid stem augers. The exploration was conducted under the technical supervision of our Field Engineer who examined, logged and sampled the soil materials encountered. Upon completion of exploration, the borings were backfilled with cement grout. A brief explanation of the terms used in logging the boring is provided on the Soil Classification Chart, Figure A-1. The Boring Logs are presented on Figures A-2 through A-5 of Appendix A. A 96-foot deep boring provided by Santa Clara Valley Water District is also included as Figures A-6 and A-7 and the location of this boring is also shown on Figure 2.

Relatively undisturbed samples were collected at select intervals in our borings for laboratory classification and testing. The samples were examined in the field, sealed to prevent moisture loss, and transported to our laboratory. In the laboratory, the samples were tested to obtain pertinent engineering properties including moisture content, dry density, unconfined compressive strength and percentage of soil passing number 200 sieves. Laboratory test results are presented on the Boring Logs, and the field exploration and laboratory testing program is discussed in greater detail in Appendix A.

Subsurface Conditions

Our subsurface exploration generally confirms the regionally-mapped geology. Boring 1 was located at the top of creekbank approximately 175 feet northwest (upstream) of University Avenue and Boring 2 was located approximately 300 feet northwest of University Avenue. Both borings were drilled on the relatively flat ground between top of bank and curb and gutter of Woodland Avenue.

Both borings encountered alluvial soil deposits consisting of varying proportions of gravels, sands silts and clays. In general, the upper 20 feet of soils consisted of medium stiff, finer-grained deposits of silts and clays with fine sand which transitioned to medium-dense, coarser deposits of Sands, Gravels and Cobbles at deeper depths. Groundwater was encountered in both borings and measured at 23.0-feet in Boring 1 and 24.0-feet in Boring 2 immediately after drilling. The Boring Logs, Figures A-2 through A-6 of Appendix A include a more detailed description of soils encountered during exploration.

Boring SF-9, advanced by Santa Clara Valley Water District near the University Avenue Bridge, encountered similar clays, sands and gravels to the maximum explored depth of 96.5 feet.

Groundwater

Groundwater in Boring 1 was first observed at 24 feet and was measured at 23 feet immediately after drilling. Groundwater in Boring 2 was first observed 24 feet and measured at 24 feet

immediately after drilling. The holes were not left open for a significant amount of time so a stabilized depth to groundwater may not have been observed. We note that water levels will be strongly influenced by water levels in the adjacent creek, but even during the summer and fall months when the creek is dry, water will likely be with about 30 feet of the ground surface due to the overall low site elevation.

Conclusions and Opinions

As noted in our December, 30, 2012 letter report, Site 1 was damaged by the December 22-23 storm event as demonstrated by the sloughing shown in Photo 1 (above) and tension cracks shown in Photos 2 through 4. While there has been no noticeable damage at this time to either the joint trench at the back of curb or paved Woodland Avenue, the steepness of the creekbank, "erodibility" of the creekbank soils and new movement has decreased lateral confinement and additional losses will threaten stability of the adjacent improvements. As shown in the Conceptual Cross Section on Figure 2 (upper right corner), the tension cracks are likely a precursor to additional "wedge failures" or sloughs of the creekbank that will lead to even steeper slopes and eventual loss of the paved roadway. So while damage appears minor at this time, we conclude the disaster has compromised the structural integrity and lateral capacity of the roadway.

We note that predicting the rate of creekbank losses and potential structural damage to the roadway is very difficult in a dynamic (creek or riverfront) environment. Large storms and flood events will typically result in damage while low flows in the creek and dry winters will result in little or no damage. High creekflow events could trigger damage similar to what occurred approximately ½ mile downstream where Woodland Avenue was nearly undermined (see MPEG letters and reports for "Site 5"). We also note that the site is in a seismically active area and strong shaking, especially during winter conditions with high soil moisture contents, could trigger slope instability that would damage Woodland Avenue.

As noted in our December 30, 2012 letter, there are several options that may be considered to improve creekbank stability and reduce risks of damage to Woodland Avenue. These options range from a "bio-engineering" option which includes establishing deep-rooted vegetation up to robust structural systems such as a steel sheetpile wall. Various options are touched on in the following bullet points:

- Bioengineering options could include planting and encouraging deep-rooted vegetation such as alders or willows along the creekbank. While this option is low-cost, it also offers significantly less "reinforcement" to the overly steep slope so relatively little improvement in slope stability is likely realized. Another disadvantage of "bio-engineered" systems is that the deep-rooted vegetation tends to induce vigorous surface growth which restricts the hydraulic capacity of the creek and thus increase flood risks. We note that much of the existing creekbank is vegetated, but damage as noted in our December letter still occurs along the creekbank.

- A Geobrugg "Tecco" netting (http://www.geobruggnz.co.nz/brochures/TECCO_e.pdf) system, similar to what was recently completed at the downstream Site 5 could be considered as a moderate-cost improvement at Site 1. While the Tecco system would improve stability, it can still be prone to failure if water gets behind the mesh facing and erosion increases. Another disadvantage to the Tecco option is the existing creekbank

vegetation would need to be removed to allow its installation which could potentially increase the short-term risks of poor creekbank performance.

- Gabions or rock rip-rap would be a high cost repair alternative and would require removal of all vegetation in the work area. These systems would also likely encroach into the channel, reducing its capacity and potentially increasing flood risks. From an environmental permitting standpoint, it will also be very difficult if not impossible to "armor" the slope with this repair type.

- Steel sheetpiles could be considered as a "permanent" structural improvement to protect the adjacent street and utilities, but this option would be very costly to install. Depending on the assumptions regarding future bank erosion and amount of sheetpile that will "cantilever", tiebacks may be needed to prevent sheetpile rotation.

- The "preferred" option to protect the roadway and utilities, in our opinion, is a cast-in-drilled-hole (CIDH) concept that is shown on Figure 2. This option, while costly, would likely be half the cost of the sheetpile option and yet nearly similar levels of improvement. This option would include drilling relatively closely-spaced piers along the top of creekbank, dropping a reinforcing cage into the piers and filling with concrete. The upper four to five feet of the CIDH piers would be structurally connected with a reinforced concrete "grade beam". The work area would likely be from the upstream, northern bridge abutment and about 350 feet upstream as shown on Figure 2. 18-inch drilled piers would likely range in depth from 25 to 30 feet and be spaced at six feet on-center, although this "preliminary" design would need to be evaluated and value-engineered to develop the most cost effective structural system.

As previously noted, the Santa Clara Valley Water District is planning a flood wall in the project area and the recommend CIDH wall would be quite easy to extend above the ground surface to reduce flood risks along Woodland Avenue. We also note that if future erosion of the creekbank exposes the drilled piers below the grade beam, shotcrete, steel plates or other "hard surfacing" could be applied to prevent scour of soils from between or behind the drilled piers. If very deep erosion exposure of the piers occurs, tiebacks could be installed through the grade beam to enhance lateral stability.

Summary and Conclusions

While we acknowledge the existing site conditions do not appear especially threatening at this time, the deep channel, steep slopes and proximity to the roadway result in a significant potential risk to Woodlande Avenue. As the City is aware with the failure and recently improved slope at Site 5, "emergency" work is undesirable and if damage occurs to utilities or the paved edge of Woodland Avenue in the area of Site 1, costs to "rebuild" the roadway or utilities will be quite high. With the subsurface data and laboratory testing acquired from our Borings 1 and 2, along with data from the District's Boring SF-9, we would be happy to prepare a structural design for a CIDH wall that would allow more refined construction cost-estimating along with advancements in project approvals and construction. From our experiences with similar projects, the construction cost of the 350-foot long CIDH concept shown on Figure 2 is estimated at $750,000. Engineering design, permitting and other "soft" costs would have to be added to the total project cost.

May 14, 2013

We trust that this letter advances the City's planning efforts to protect Woodland Avenue and related facilities and we can consult with City Staff permitting agencies or others, as needed, regarding the intent of our recommendations. Please do not hesitate to contact us should there be any questions regarding our Investigation.

Yours very truly,
MILLER PACIFIC ENGINEERING GROUP

Michael Morisoli
Geotechnical Engineer No. 2541
(Expires 12/31/14)

Attachments: Figures 1 through 4,
Appendix A, Figures A-1 to A-7
MPEG's December, 30, 2012 letter report

3 copies submitted

cc: Mr. John Doughty, City of East Palo Alto,
Mr. Masoud Kermani (KCG)

SITE: LATITUDE, 37.457°
LONGITUDE, -122.140°

SITE LOCATION

NORTH

REFERENCE: Google Earth, 2013

Miller Pacific
ENGINEERING GROUP

504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

FILE: 1787.02 SLM.dwg

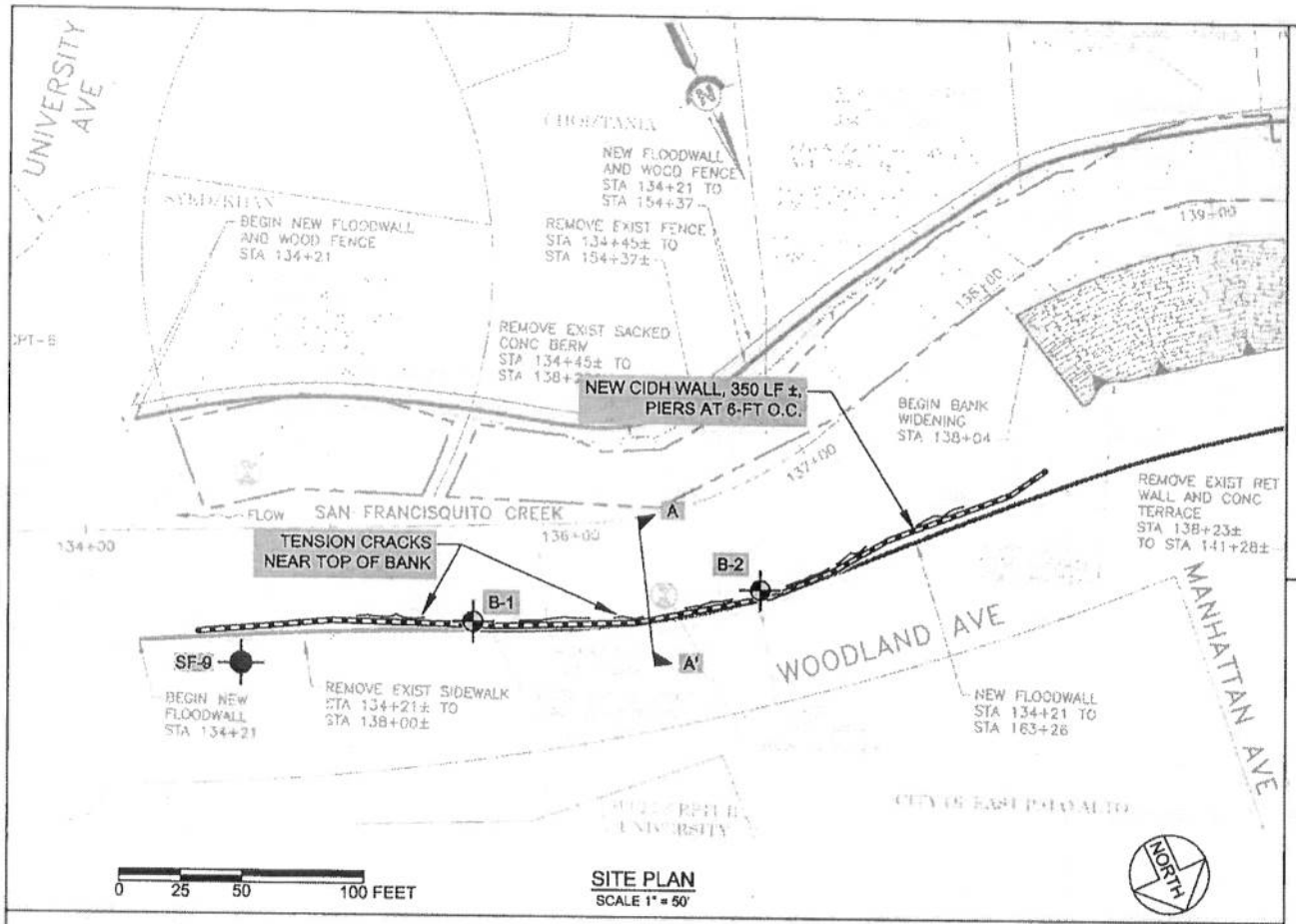
SITE LOCATION MAP

San Francisquito Creek
Site 1
East Palo Alto, California

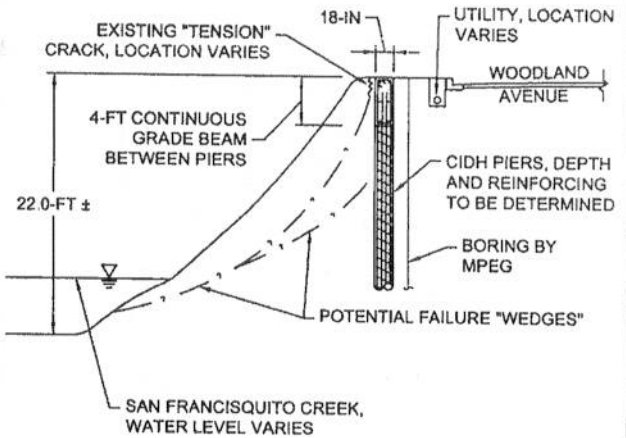
Project No. 1787.02 Date: 5/6/13

Drawn EDT
Checked

1
FIGURE



SITE PLAN
SCALE 1" = 50'



CONCEPTUAL CROSS SECTION A-A'
(NO SCALE)

LEGEND:

- BORING BY MPEG, 5-1-13
- BORING BY SANTA CLARA VALLEY WATER DISTRICT, 5-9-12
- NEW CIDH WALL
- CONCEPTUAL CROSS SECTION

REFERENCE: Site Plan by Santa Clara Valley Water District "San Francisquito Creek, West Bayshore Road to Pope / Chaucer Street", Plate 2C, Job No. 26284001, 6/2012.

Miller Pacific
ENGINEERING GROUP
504 Redwood Blvd
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

F&E 1787.02 Plans.dwg

SITE PLAN

San Francisquito Creek
Site 1
East Palo Alto, California

Project No. 1787.02 Date: 5/2/13

Drawn EDT
Checked

2
FIGURE